



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/749,402

01/02/2004

Hideaki Shoji

247214US6X

2868

22850

7590

09/20/2006

C. IRVIN MCCLELLAND
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

PHAM, TUAN

ART UNIT

PAPER NUMBER

2618

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/749,402	Applicant(s) SHOJI, HIDEAKI	
	Examiner TUAN A. PHAM	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-11 is/are rejected.
- 7) ☒ Claim(s) 7 and 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>07/13/2004</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 07/13/2004 has been considered by Examiner and made of record in the application file.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-3, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (Patent No.: US 5,949,377, hereinafter, "Matsumoto" in view of Hu (Patent No.: US 6,492,952).**

Regarding claim 1, Matsumoto teaches a radio device comprising a notch antenna, wherein said notch antenna comprises (see figure 44):

a circuit substrate comprising a ground portion (see figure 54, ground), and a notch portion opened at one end thereof (see figure 44, notch antenna 90, open portion 92); and

a radio circuit portion provided on said circuit substrate for supplying a high-frequency current to said notch portion (see figure 44, high frequency signal source 25, col.12, ln.18-61).

It should be noticed that Matsumoto fails to teach a conductive bent-back portion formed so as to be connected with said ground portion and to extend said second antenna, on said one end side of said circuit substrate. However, Hu teaches a conductive bent-back portion formed so as to be connected with said ground portion and to extend said second antenna, on said one end side of said circuit substrate (see figure 1, antenna 14 with bent-back, ground plane 22, col.3, ln.15-65).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Hu into view of Matsumoto in order to improve the directivity as suggested by Matsumoto at col.2, ln.15-21.

Regarding claim 2, Hu further teaches said bent-back portion is formed by integrally bending a portion of said circuit substrate (see figure 1, antenna 14 with bent-back).

Regarding claim 3, Hu further teaches said circuit substrate has a multilayer structure in which one layer is a flexible printed cable, and said bent-back portion is formed by bending said flexible printed cable (see figure 1, col.5, ln.20-28).

Regarding claim 10, Matsumoto teaches a cellular phone comprises (see figure 44):

a casing (housing 15);

a circuit substrate comprising a ground portion (see figure 54, ground), and a notch portion opened at one end thereof (see figure 44, notch antenna 90, open portion 92); and

a radio circuit portion provided on said circuit substrate for supplying a high-frequency current to said notch portion (see figure 44, high frequency signal source 25, col.12, ln.18-61).

It should be noticed that Matsumoto fails to teach a conductive bent-back portion formed so as to be connected with said ground portion and to extend said second antenna, on said one end side of said circuit substrate. However, Hu teaches a conductive bent-back portion formed so as to be connected with said ground portion and to extend said second antenna, on said one end side of said circuit substrate (see figure 1, antenna 14 with bent-back, ground plane 22, col.3, ln.15-65).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Hu into view of Matsumoto in order to improve the directivity as suggested by Matsumoto at col.2, ln.15-21.

5. Claims 4-6, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (Patent No.: US 5,949,377, hereinafter, "Matsumoto" in view of Hu (Patent No.: US 6,492,952) as applied to claims 1 and 10 above, and further in view of Kikuchi et al. (Patent No.: 6,223,023).

Regarding claim 4, Matsumoto and Hu, in combination, fails to teach said bent-back portion is formed by bending a metallic plate. However, Kikuchi teaches such features (see col.2, ln.14-17).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Kikuchi into view of Matsumoto and Hu in order to improve the directivity as suggested by Matsumoto at col.2, ln.15-21.

Regarding claim 5, Hu further teaches said bent-back portion is fixed to said circuit substrate by a screw for fixing both a casing for containing said radio device therein and said circuit substrate (see figure 1, col.2, ln.10-13, it is obvious that those elements should be soldering or screw).

Regarding claim 6, after combine, Kikuchi teaches said bent-back portion is comprised of: a perpendicular portion rising substantially perpendicularly to said circuit substrate; and a parallel portion substantially parallel to said circuit substrate, said parallel portion formed so as to extend from the leading end of said perpendicular portion in a direction substantially orthogonal to the antenna direction of said antenna portion and to cross said antenna portion (see figures 1&4, antenna 4, bent-back 7a), and Matsumoto teaches notch portion (see figure 44, notch antenna 90).

Regarding claim 9, Kikuchi further teaches said bent-back portion is bent back to the side on which said radio circuit portion is provided, of said circuit substrate (see figure 4).

Regarding claim 11, Kikuchi further teaches said bent-back portion is formed so as to be bent back to the side opposite to the side of a hand when said cellular phone is held on the hand (see figure 4, bent-back 7a is facing out when the mobile is held on hand).

Allowable Subject Matter

6. Claims 7-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In order to expedite the prosecution of this application, the applicants are also requested to consider the following references. Although Vaisanen et al. (U.S. Pub. No. 2001/0040528), Iwai et al. (U.S. Pub. No. 2003/0038751), Umehara et al. (U.S. Pub. No. 2003/0052827), and Anderson (U.S. Pub. No. 2001/0030627) are not applied into this Office Action; they are also called to Applicants attention. They may be used in future Office Action(s).

Art Unit: 2618

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A. Pham whose telephone number is (571) 272-8097. The examiner can normally be reached on Monday through Friday, 8:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have question on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit 2618
September 11, 2006
Examiner



Tuan Pham

Supervisory Patent Examiner
Technology Center 2600



Matthew Anderson